

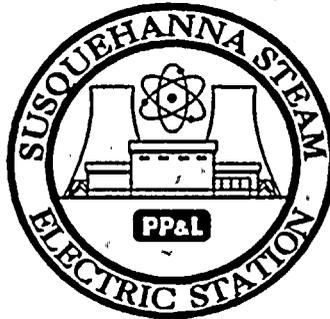
**Susquehanna Steam Electric Station
Units 1 & 2**

**1996
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**

PP&L

**Pennsylvania Power & Light Company
Allentown, PA
April 1997**

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**Susquehanna Steam Electric Station
Units 1 & 2**

**1996
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**

**Facility Operating License Nos. NPF-14 & NPF-22
Docket Nos. 50-387 & 50-388**

**prepared by
Environmental Services
Operations Technology
Pennsylvania Power & Light Company
Allentown, PA
April 1997**



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SUSQUEHANNA STEAM ELECTRIC STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)

1996

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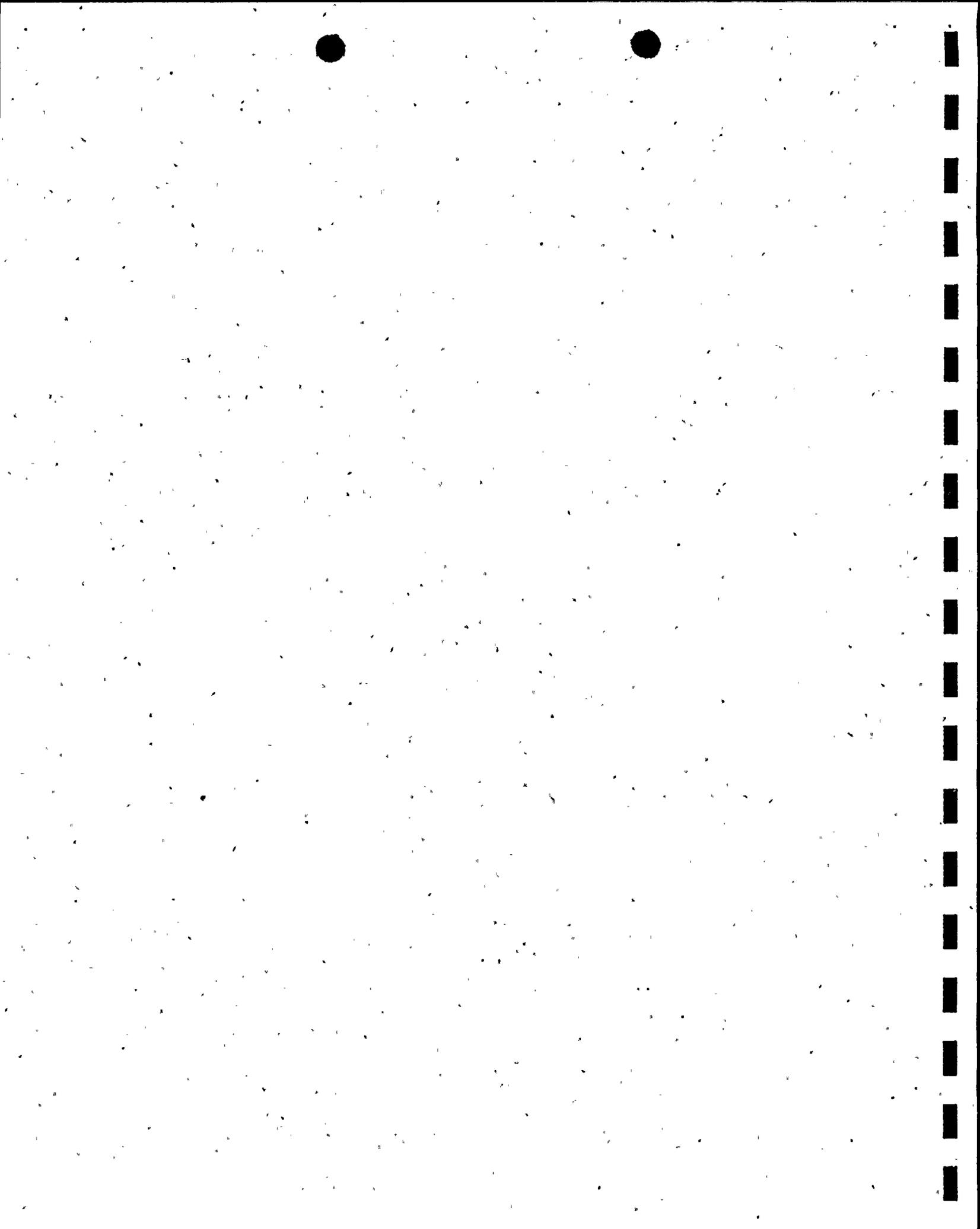
4/4/97

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FOREWORD

The Susquehanna Steam Electric Station (Susquehanna SES) consists of two boiling water reactors, each with a net electrical generating capacity of approximately 1,150 megawatts. The 1,700 acre site is located in Salem Township, Luzerne County, Pennsylvania approximately five miles northeast of Berwick, Pennsylvania. Under terms of an agreement finalized in January 1978, 90% of the Susquehanna SES is owned by the Pennsylvania Power and Light Company (Licensee) and 10% by the Allegheny Electric Cooperative, Inc.

The 1996 Annual Environmental Operating Report (Nonradiological) for Units 1 and 2 describes results of programs necessary to meet requirements of Section 2F of the Operating License, Protection of the Environment, and Appendix B, Environmental Protection Plan, as well as commitments in the Final Environmental Statement related to operation (NUREG-0564), June 1981. This report discusses environmental commitments and impacts from January 1, 1996, through December 31, 1996.

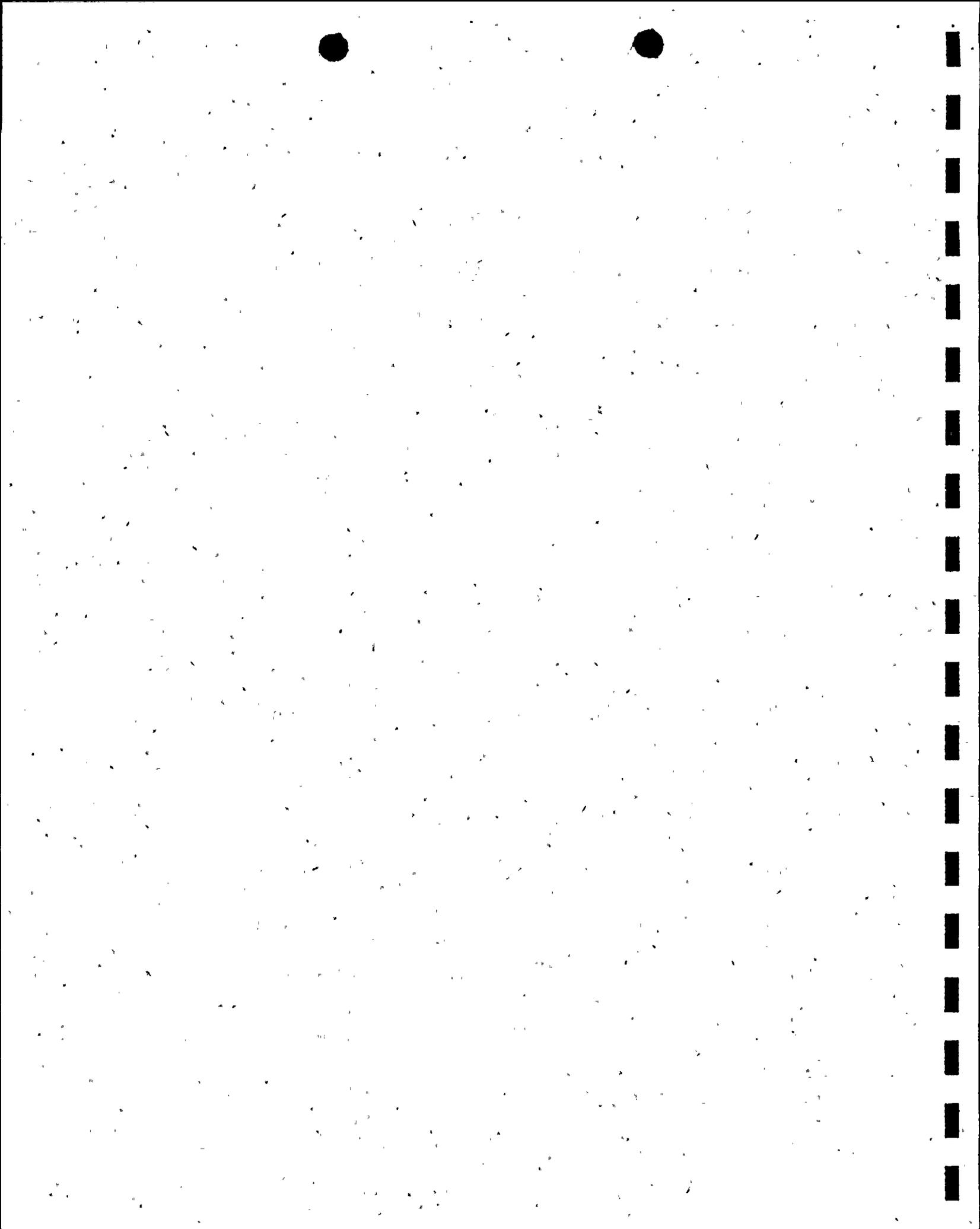


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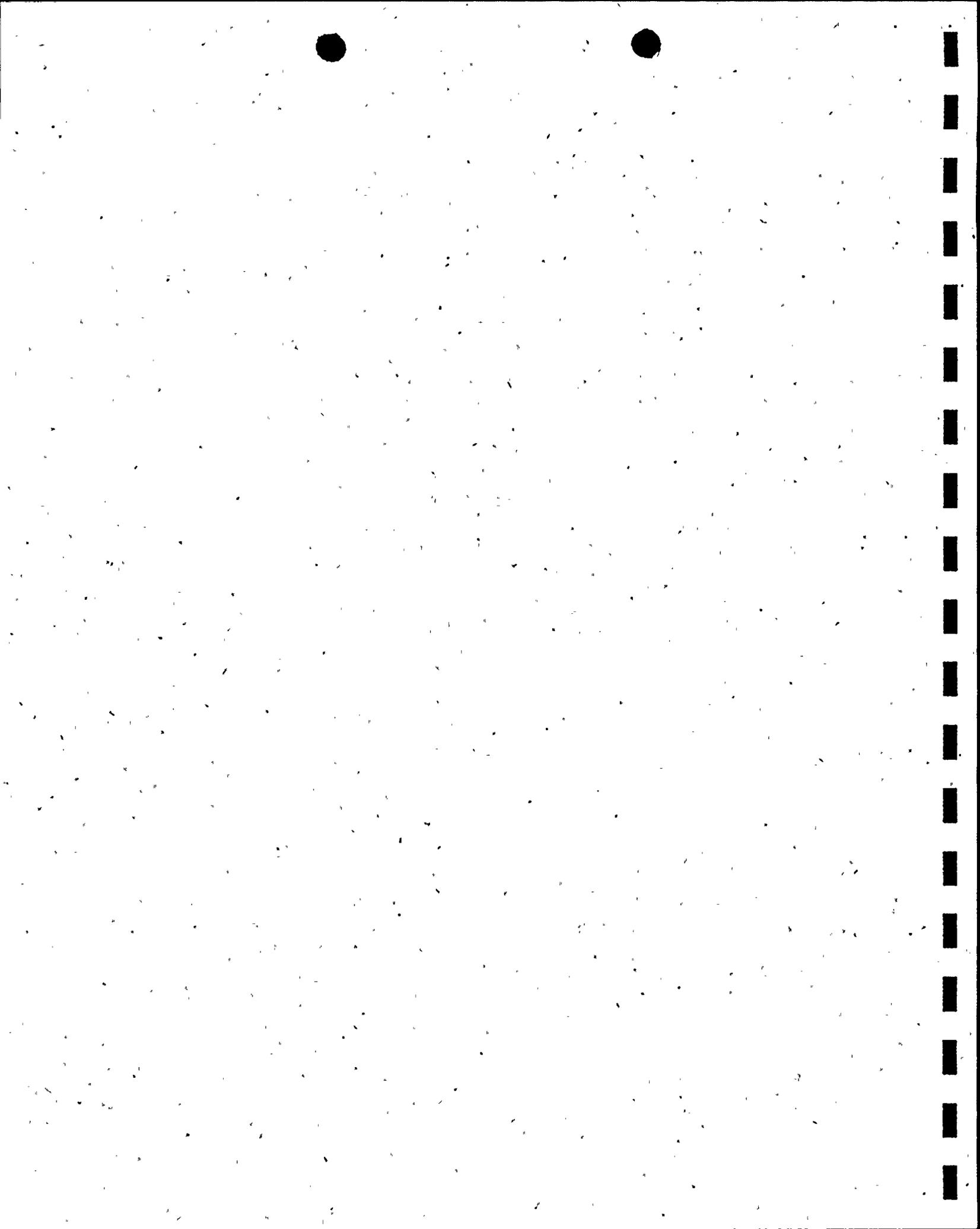
FIGURE

5.1-1 Auditing Organization Chart

1.0 OBJECTIVES

The Licensee submitted an Environmental Report-Operating License Stage for Susquehanna SES to the U.S. Nuclear Regulatory Commission (NRC) in May 1978. This report reviewed the results of the preoperational impacts of construction and described the preoperational and proposed operational environmental monitoring programs. The NRC and other agencies reviewed this report and made recommendations for operational environmental monitoring programs which were listed in the Final Environmental Statement (FES) related to the operation of the Susquehanna SES, Unit 1 and 2, NUREG-0564, June 1981. In addition, the Licensee developed procedures and guidelines to ensure that operation of Susquehanna SES does not adversely affect the environment in the vicinity of the station.

Procedures were developed to allocate responsibilities and interfaces necessary to monitor environmental impacts. These include coordination of NRC requirements and consistency with other federal, state, and local requirements for environmental protection. In addition, this 1996 Annual Environmental Operating Report (Nonradiological) provides a summary of both environmental programs and procedures as required in the FES and Appendix B - Environmental Protection Plans (EPP) to Operating Licenses, No. NPF-14 and No. NPF-22. The 1996 report is the 15th Annual Environmental Operating Report (Nonradiological) submitted to meet EPP requirements.



2.0 ENVIRONMENTAL ISSUES

2.1 Aquatic Issues

The aquatic monitoring program for operation of the Susquehanna SES is divided into two phases. Phase 1 includes effluent monitoring required by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Pennsylvania Department of Environmental Protection (PaDEP). Monthly discharge monitoring reports are submitted to the PaDEP as part of the permitting requirements. The station operational NPDES permit No. PA-0047325 was reissued on June 22, 1995, and is to expire on June 21, 2000. Phase 2 of the aquatic monitoring program deals with programs listed in the FES involving environmental monitoring.

The PaDEP in Phase 1 is responsible for regulating the water quality permit for the Susquehanna SES. The NPDES permit deals with discharge parameters for the Susquehanna SES Sewage Treatment Plant, Cooling Tower blowdown, and miscellaneous low volume waste discharges. The cooling tower blowdown also includes in-plant process streams which discharge to the Susquehanna River. Various low volume waste sumps discharge to the storm sewers which flow into Lake Took-a-while, and eventually into the Susquehanna River. NPDES permit parameters monitored are listed in the 1995 Annual Environmental Operating Report (Nonradiological).

American Shad

The Susquehanna Anadromous Fish Restoration Committee administered programs that resulted in the capture of 37,513 American shad (*Alosa sapadissima*) and 1,132 blueback herring (*Alosa aestivalis*) in the two fish lifts below the Conowingo Dam on the Susquehanna River from April 1 through June 14, 1996 (Ref. 2.1-2). This shad catch, although less than the record setting catch in 1995, was the second highest taken at Conowingo. The blueback herring catch was also much lower than last year when it was the largest since 1974. The apparent decline in the number of shad and herring occurred because of reduced operation of the lifts. High water at both lifts and mechanical problems at the East lift substantially reduced the actual number of days the lifts were used during the 2½-month season.

Of the fish captured at Conowingo, 33,825 American shad and 410 blueback herring were transported and stocked upstream of all major dams in 1996. Nearly equal numbers of shad were stocked at the Tri-County Boat Club at Middletown and at the public boat launch at

Columbia, Pennsylvania. The shad ranged in age from 3 to 7 years; most males (81%) were 4 to 5, and the majority of the females were 5 to 6 years of age.

The Pennsylvania Fish and Boat Commission operated a shad culture facility at Van Dyke, near Thompsettown, Pennsylvania. From May 8 to June 10, 14.4 million (M) shad eggs were delivered to the hatchery from the Delaware River (8.31 M), the Hudson River (5.69 M), and the Susquehanna River (0.41 M). Viability of these eggs was 63% resulting in 7.466 million fry stocked in the Susquehanna River and 0.993 million Delaware source fry to the Lehigh River. On June 19, 682,500 fry were released into the Susquehanna River at the Berwick Boat Club Boat Ramp, located about 8.5 miles down river from the Susquehanna SES.

Monitoring for impinged juvenile American shad was not conducted on the intake screen of the Susquehanna SES in the fall of 1996. Mr. Richard St. Pierre, Susquehanna River Coordinator for the Fish and Wildlife Service, felt that such a monitoring effort would not be productive because of the high natural river flows experienced during the summer and early fall months (Exhibit 1).

Fish passage facilities at the Holtwood SES Dam (PP&L) and the Safe Harbor Dam (PP&L and Baltimore Gas and Electric Company) should be operational for the 1997 American shad spawning run. General Public Utilities, owners of the York Haven Dam, the last major impediment to shad migration on Susquehanna River, plans to construct a conventional fish ladder at the East Channel Dam of York Haven by April, 2000.

Biofouling Mollusk Monitoring

The biofouling mollusks monitoring program was continued at the Susquehanna SES in 1996. Though zebra mussels (*Dreissena polymorpha*) have been found in past years in samples near Johnson City, New York, about 150 miles upriver, and Asiatic clams (*Corbicula fluminea*) were confirmed 40 miles downriver at Northumberland, Pennsylvania, neither of these species have yet been found in the vicinity of the Susquehanna SES.

The monitoring program currently involves a biweekly schedule of water and artificial substrate sampling in the river near the Susquehanna SES from May through November. Artificial substrates are also maintained in side-stream samplers located in the Intake Structure and on the plant site. In addition, monthly inspections of natural substrates were performed in the river and in the Emergency Service Water Spray Pond.

2.2 Terrestrial Issues

2.2.1 Studies Previously Completed

Terrestrial environmental studies completed prior to 1989 included Cooling Tower bird impact and sound level surveys.

2.2.2 Sound Level Survey

An increase in station power generation of 5% was completed during spring 1995. A power uprate sound level survey was conducted in June 1995.

2.2.3 Maintenance of Transmission Line Corridors

Transmission line corridor maintenance and inspection records will be maintained by the Electrical Services group and are available upon request. Records will be maintained for five years.

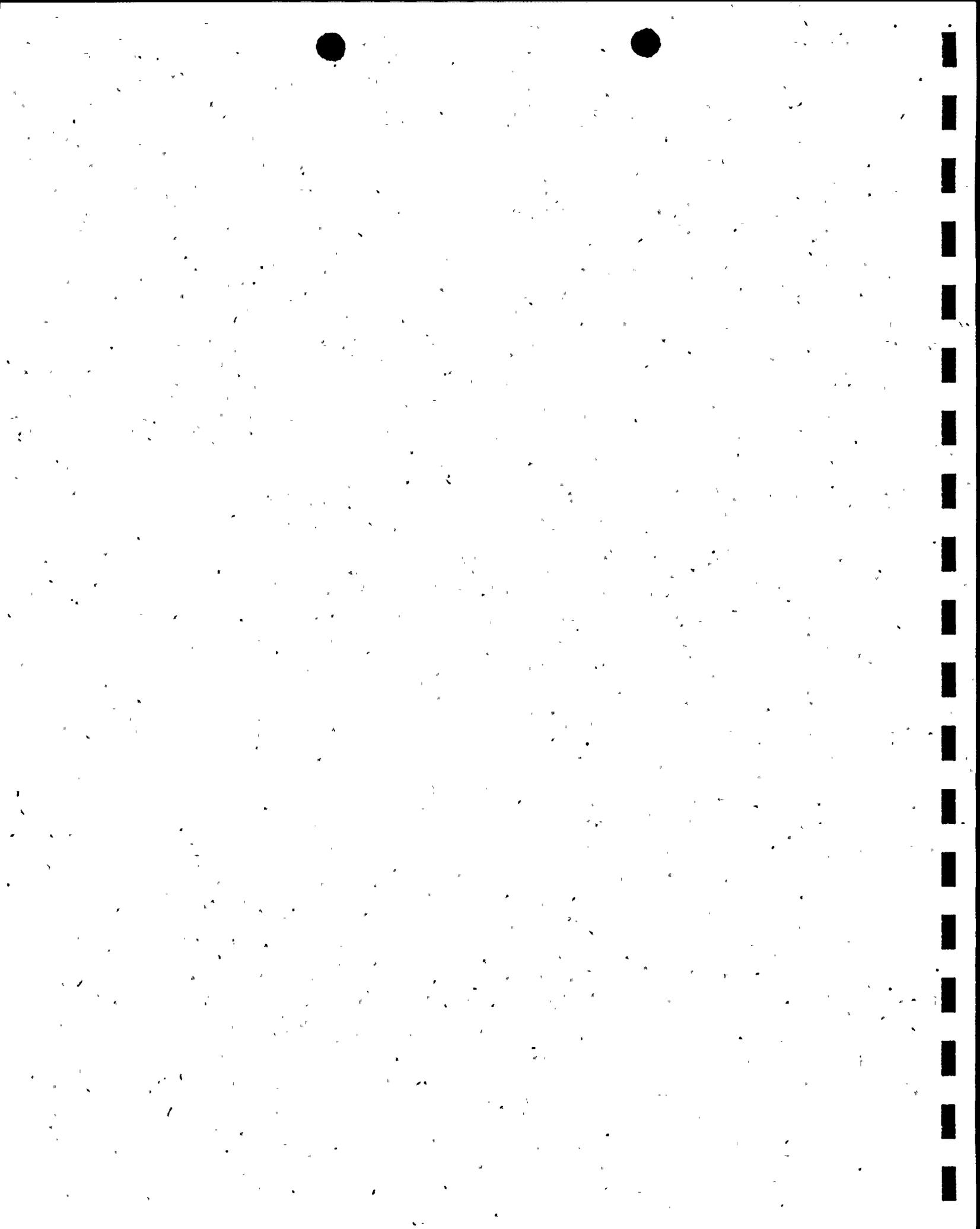
2.3 Cultural Resources Issues

Environmental Protection Plan actions required to satisfy Title 36, Code of Federal Regulations Part 800, relating to archeological sites, were completed in 1987. The Advisory Council on Historic Preservation (ACHP), in accordance with 36 CFR 800.6 (a)(1), approved the NRC's determination of "no adverse effect" for archeological sites SES-3, SES-6, SES-8, and SES-11 located on the Licensee's property (NRC letter dated October 28, 1987, to ACHP).

As part of the determination of effect process, the Licensee committed to and is taking appropriate measures to mitigate impacts from plant maintenance and operation to sites SES-3, SES-6, SES-8 and SES-11. There was no impact to these sites from plant maintenance and operation in 1996.

REFERENCES

- 2.1-1 Restoration of American Shad to the Susquehanna River, Annual Progress Report-1996, Susquehanna River Anadromous Fish Restoration Committee, February 1997.



3.0 CONSISTENCY REQUIREMENTS

3.1 Plant Design and Operation

In accordance with the Environmental Protection Plan (EPP), the Licensee shall prepare and record an environmental evaluation of proposed changes in plant design, operation, or performance of any test or experiment which may significantly affect the environment. Before initiating such activities, the Licensee shall provide a written evaluation and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. Criteria for the need to perform an environmental evaluation include: (1) a significant increase in any adverse environmental impact previously evaluated by the NRC or Atomic Safety and Licensing Board, (2) a significant change in effluent or power level, or (3) a matter not previously evaluated which may have a significant adverse environmental impact.

The EPP requires that if an activity meets any of the criteria to perform an environmental evaluation, the NRC will be notified. If the change, test, or experiment does not meet any of these criteria, the Licensee will document the evaluation and allow the activity to occur.

During operation of the Susquehanna SES in 1996, there were 11 proposed activities which the Licensee reviewed as part of the unreviewed environmental question program. None of these 11 activities was determined to be an unreviewed environmental question. These activities were:

1. An evaluation was conducted on the discharge, through the liquid radwaste treatment system, of wastewater containing low levels of radioactivity and less than 1% ethanol. Release of the wastewater was determined to be in accordance with existing permit requirements and regulations and of negligible adverse environmental impact.
2. The potential for soil erosion and pollution by sedimentation as a consequence of constructing a spent fuel storage facility was evaluated. It was determined that this evolution would have a negligible adverse environmental impact because construction was occurring in a previously disturbed area. In addition, an erosion and sedimentation control plan was prepared for the project and submitted to the Luzerne County Conservation District.
3. The potential for a release of refrigerant R-134A during installation of a refuel platform air dryer was evaluated. Such a release would not

be reportable under any federal or state regulations, nor would it have a significant adverse environmental impact.

4. An evaluation was performed for the potential for soil erosion and pollution by sedimentation as a consequence of constructing a 60-inch-by-60-inch concrete pad for meteorological equipment. The earth-moving associated with this project was occurring on previously disturbed land and did not require permits, and it was determined to be of negligible adverse environmental impact.
5. An evaluation was performed for the potential for soil erosion and pollution by sedimentation as a consequence of installing a section of underground piping for the supplemental decay heat removal system. The earth-moving associated with this project was occurring on previously disturbed land and did not require permits, and it was determined to be of negligible adverse environmental impact.
6. The replacement of the water level switches in all of the low volume waste sumps was evaluated. These sumps are monitored NPDES discharge points. The current level sensors are unreliable and could conceivably allow an unmonitored discharge of wastewater to occur. The replacement of the level switches with more reliable ones will not have a significant adverse impact on the environment.
7. An evaluation was performed for the use of a seine net or chemical biocide to remove nuisance fish from the emergency service water pond. Use of the net is not regulated. Use of the proposed biocides is covered under both a biocide application permit and the station's NPDES permit to ensure control of any environmental impact.
8. An evaluation was performed for the installation of the supplemental decay heat removal system. This system uses makeup water from the river to provide augmented cooling of the spent fuel pools. The potential environmental impacts that were examined were discharge of treatment chemicals, radiological releases, and increased heat content of cooling tower blowdown. It was determined that each of these considerations fell within the design limits and permit requirements for station operation.
9. The discharge to the storm sewer of 1,000 gallons of river water from the supplemental decay heat removal system was evaluated. This discharge was found to be of negligible adverse environmental impact.
10. The use of Avitrol bait to control the pigeon population at the station was evaluated. Avitrol is approved by EPA for this purpose. The activity was conducted by a licensed pesticide applicator. This

evolution was determined to have negligible adverse environmental impact.

11. Proposed maintenance on a low-pressure tank of carbon dioxide required the release of eight tons of carbon dioxide to the atmosphere. This proposed release was evaluated for its environmental impact. It was found that releases of carbon dioxide are not regulated and are not limited by the station's air pollution permit. Therefore, the carbon dioxide was released as proposed, with no adverse impact on the environment.

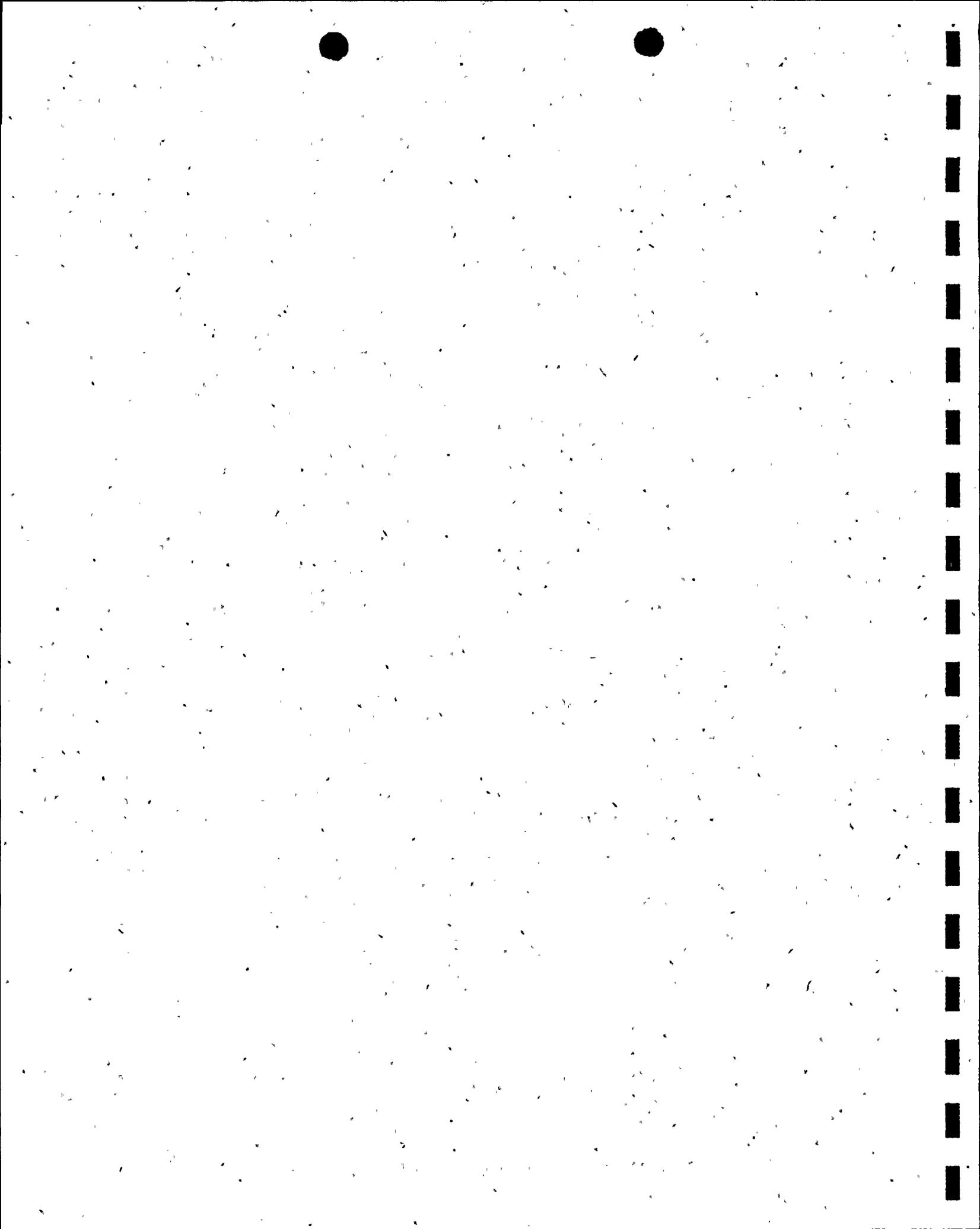
3.2 Reporting Related to NPDES Permits and State Certifications

Reports and information required by the EPP concerning the NPDES Permit were submitted to both the NRC and PaDEP. These include violations and changes and additions to the permit. Pennsylvania is a NPDES Permitting Agreement State with the U.S. Environmental Protection Agency, therefore, state certification pursuant to Section 401 of the Clean Water Act is not required.

3.3 Changes Required for Compliance with Other Environmental Regulations

Permits received for the Susquehanna SES in 1996 were:

<u>PERMIT</u>	<u>NEW/RENEWAL</u>
Air Blasting Operation Air Quality Permit No. 40-399-024 (PaDEP)	Renewal
Diesel Generator (E) Air Quality Permit No. 40-306-004 (PaDEP)	Renewal
Diesel Generators (A-D) Air Quality Permit No. 40-306-005 (PaDEP)	Renewal
Highway Occupancy Permit Temporary River Water Make-up Pipeline No. 04018389 (Pa Department of Transportation)	New
Permit for use of an algaecide, herbicide or Fish Control Chemical in waters of Pennsylvania, Emergency Service Water Spray Pond, No. NE-40-12-96 (PA Fish and Boat Commission and PaDEP)	New



4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

During 1996, seven operating occurrences were reviewed as part of the significant environmental event evaluation. There were no adverse environmental effects caused by these occurrences. The NRC was not notified of any of these events.

These events were as follows:

1. About 75 lbs. of refrigerant HCFC-22 was released from an air conditioning unit in the security control center when a valve failed. There were no reporting requirements for this material and the valve was repaired promptly.
2. Three storage cylinders were found to be leaking Freon R12 and R114. The quantities of Freon that leaked from the 1,100-lb. cylinders could not be determined. R12 has a reportable quantity of 5,000 lb.; R114 has no reportable quantity. Therefore, no agencies had to be notified of this release. The Freon remaining in the cylinders was transferred to other containers.
3. A dead kingfisher was found on the turbine deck. The Environmental Protection Plan and station procedures describe the mortality of a member of a species protected by the Endangered Species Act as an event of environmental significance. Investigation revealed that the bird was a belted kingfisher, which is neither threatened nor endangered. Therefore, this was not an event of environmental significance.
4. A 2-gpm leak of clarified water, containing about 0.1 ppm free chlorine, was released to the storm sewer over a period of several days until repairs could be effected. Occasional discharges of clarified water are described under the station's NPDES permit.
5. An unspecified amount of sodium bromide was released from a storage tank when a pipe from the tank was accidentally sheared. All of the spilled material was contained within the tank's dike. The storage tank is not regulated, and sodium bromide is not a regulated material. The event was not reportable and no adverse environmental impact resulted from this event.
6. A sewage lift station overflowed, releasing sanitary waste over an area of about 100 square feet on the station yard. In accordance with the

station's NPDES permit, the Pennsylvania Department of Environmental Protection was notified of this event in the appropriate discharge monitoring report cover letter.

7. A vehicle battery exploded, releasing its contents of sulfuric acid onto the ground. No personnel were injured and no equipment was significantly damaged by the explosion. The amount of sulfuric acid was considerably less than the reportable quantity. The release was cleaned up and had negligible effect on the environment.

4.2 Environmental Monitoring

4.2.1 Maintenance of Transmission Line Corridors

Transmission line maintenance and inspection records are maintained by the Electrical Services group.

4.2.2 Aquatic Programs

The aquatic monitoring requirements, identified in the FES and Appendix B of the operating license for the Susquehanna SES, have been completed and confirm that effects on aquatic biota and water quality due to plant operation were no greater than predicted.

5.0 ENVIRONMENTAL PROTECTION PLAN REPORTING REQUIREMENTS

5.1 Review and Audit

The Licensee has established procedures for an independent group to review and audit compliance with the EPP. Audits of EPP compliance are conducted by Nuclear Assessment Services and Environmental Management Division. The Auditing Organizational Chart (Fig. 5.1-1) lists the various groups utilized in environmental reviewing and auditing of the Susquehanna SES environmental monitoring programs. The Manager-Nuclear Technology is responsible for off-site environmental monitoring and for providing any related support concerning licensing. The Plant Manager - SSES is responsible for on-site environmental matters. The Manager-Nuclear Assessment Services with support from the Manager-Environmental Management Division of the Power and Systems Support Department is responsible for verifying compliance with the EPP. Additional Nuclear Department responsible positions are also included in Figure 5.1-1.

There will be periodic audits of this report. An audit of the EPP was conducted in 1996. There was one finding and three observations/recommendations. The audit finding requires that the licensee provide the NRC with copies of the results of studies at the same time they are submitted to the permitting agency. These studies relate to noncompliances of the NPDES water quality permit. Nonradiological Environmental Compliance Program procedure (NDAP-QA-0642, Rev. 2) was revised to give Nuclear Licensing the responsibility for submission of these studies to the NRC. Observations/recommendations included preparation of (1) an Unreviewed Environmental Question on-the-job training manual, (2) a revision of an environmental evaluation log form, and (3) an update of the Susquehanna SES Environmental Compliance Manual. The audit finding and observation/recommendations requirements were closed out in 1996.

5.2 Records Retention

Records and logs relative to environmental aspects of plant operation and audit activities are retained in the Nuclear Records System. This system provides for a convenient review and inspection of environmental documents which are available to the NRC upon request.

All records concerning modifications of plant structures, systems and components which are determined to potentially affect the continued

protection of the environment, shall be retained for the life of the plant. All other records, data, and logs relating to the environmental programs and monitoring shall be retained for at least five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

There were no requests for changes in the EPP during 1996.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

This Annual Environmental Operating Report (Nonradiological) was prepared to meet routine reporting requirements of the EPP for 1996. It provides summaries and analyses of environmental protection activities required in Subsection 4.2 of the EPP for the reporting period.

5.4.2 Nonroutine Reports

There were no Unusual or Important Environmental Events as identified in the Environmental Protection Plan that required a nonroutine report in 1996.

EXHIBIT 1
SUSQUEHANNA RIVER ANADROMOUS FISH
RESTORATION COOPERATIVE



Members

Maryland Department of Natural Resources
National Marine Fisheries Service
New York Division of Fish and Wildlife
Pennsylvania Fish and Boat Commission
Susquehanna River Basin Commission
United States Fish and Wildlife Service

Secretary

Susquehanna River Coordinator
U. S. Fish and Wildlife Service
1721 N. Front Street, Rm 105
Harrisburg, PA 17102
Telephone: 717-238-6425
Fax: 717-238-0495

July 8, 1996

MEMORANDUM

TO: Jerry Fields, PP&L, Allentown, PA
FROM: Dick St. Pierre, USFWS, Harrisburg, PA
SUBJECT: Juvenile Shad Monitoring at Susquehanna SES

During the 1996 migration season, 37,513 adult American shad were collected at the Conowingo Dam fish lifts and about 34,000 were successfully transferred upstream to spawn. The run was later than usual due to cool weather and high water conditions during April through mid-May with about 80% of the fish being collected after May 19.

Because of this late run and the inflation of the Fabridam at Sunbury prior to Memorial Day, it is doubtful that significant numbers of spawning shad could have reached the North Branch. Therefore, I do not recommend sampling for juvenile shad in the vicinity of Susquehanna SES in 1996. Please call if you wish to discuss this further.

cc: Ted Jacobsen

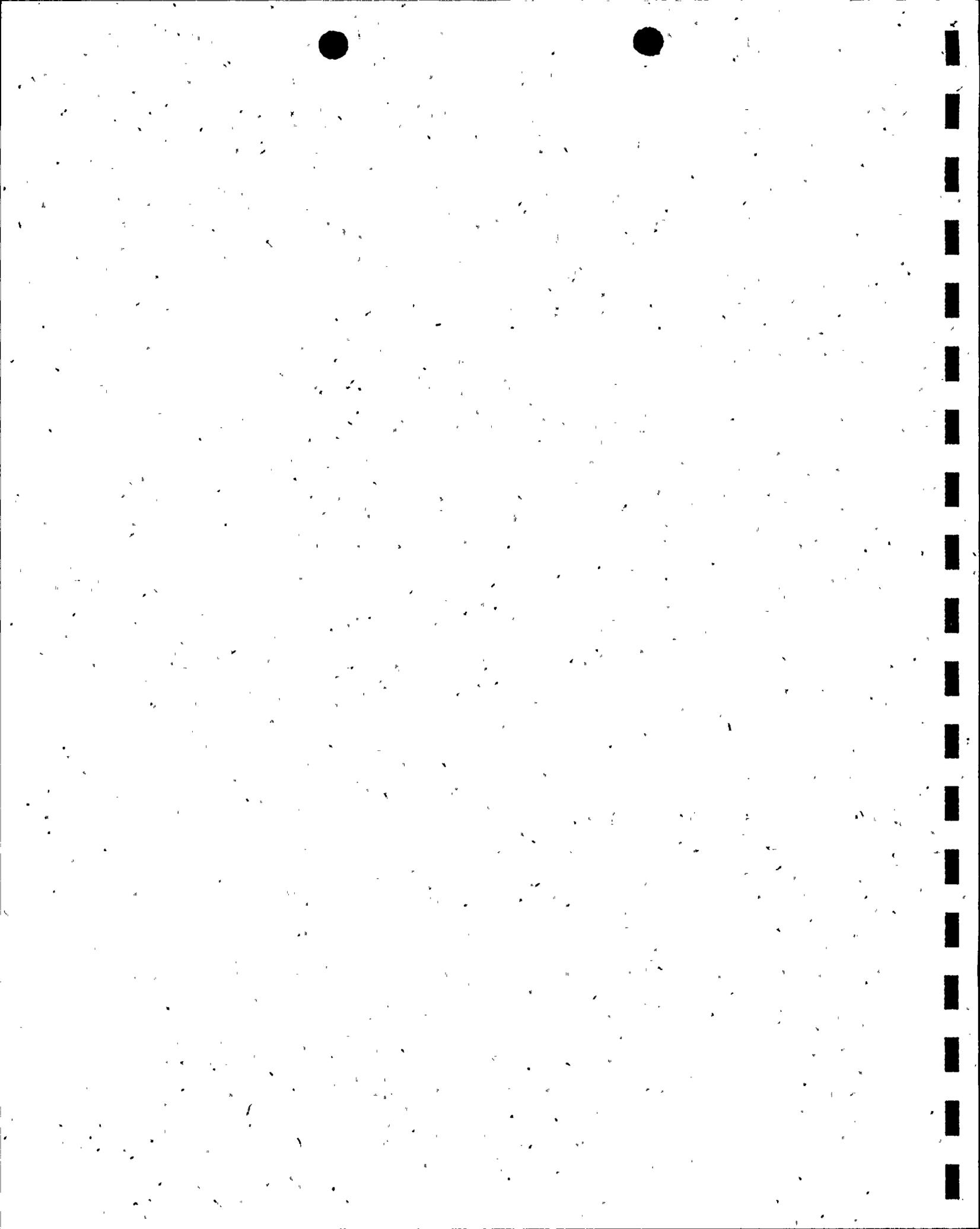


Figure 5.1-1
Auditing Organization Chart

